CLAIMS:

1. A method of converting heat to electricity that uses a multi-component working fluid containing ammonia and water and which comprises:

   a feedpump to increase the pressure of the working fluid in its liquid form,

   a heater to heat, vaporize and superheat the working fluid to a superheated vapour state,

      such heater being a heat exchanger using a fluid that supplies heat to the working fluid arranged in counter-flow to the working fluid,

   a turbine to extract usable energy from the working fluid by reducing its pressure and enthalpy,

   a cooler to cool and condense the working fluid to a liquid state,

      such cooler being a heat exchanger using a fluid that absorbs heat from the working fluid arranged in counter-flow to the working fluid,

   and includes:

   means to sealably interconnect the equipment with flow passages, and

   valves, sensors and control systems to manage the operation.

2. The combination defined in claim 1 wherein a recuperator is added, such recuperator described as:

   a heat exchanger that transfers heat

      from heat contained in the working fluid vapour leaving the turbine,

      with sufficient heat transferred to partially condense the working fluid leaving the turbine,

      to the working fluid liquid leaving the feedpump,

      with sufficient heat transferred to partially vaporize the working fluid leaving the feedpump, and

such heat exchanger arranged with the working fluid coming from the turbine in counter-flow to the working fluid coming from the feedpump.

3. The combination defined in claim 2 wherein the cooler is replaced by two coolers with the working fluid connected in series through the two coolers which comprises:

a first cooler to cool and partially condense the working fluid,

such cooler being a heat exchanger using a fluid that absorbs heat from the working fluid,

a second cooler to condense the working fluid to a liquid state,

such cooler being a heat exchanger using a fluid that absorbs heat from the working fluid,

4. The combination defined in claim 2 wherein a pre-heater is added such that the working fluid exists only in the vapour state within the heater, such pre-heater described as:

a heat exchanger that transfers heat

from heat contained in the working fluid vapour extracted from the heater at a point part way through the heater with such working fluid vapour being returned at a lower temperature to the heater at essentially that same point to continue through the heater,

to the partially vapourized working fluid leaving the recuperator,

with sufficient heat transferred to heat the fluid leaving the recuperator to the dew point of the working fluid or higher temperature, and

such heat exchanger arranged with the working fluid coming from the recuperator in counter-flow to the working fluid coming from the heater.

5. The combination defined in claim 4 wherein the cooler is replaced by two coolers with the working fluid connected in series through the two coolers which comprises:

a first cooler to cool and partially condense the working fluid,

such cooler being a heat exchanger using a fluid that absorbs heat from the working fluid,

a second cooler to condense the working fluid to a liquid state,

such cooler being a heat exchanger using a fluid that absorbs heat from the working fluid,

6. The combination defined in claim 2 wherein the fluid that supplies heat to the working fluid in the heater is a flue gas produced by combusting biomass.

7. The combination defined in claim 2 wherein the fluid that supplies heat to the working fluid in the heater is a flue gas produced as a waste product of an existing industrial process.

8. The combination defined in claim 3 wherein the fluid that supplies heat to the working fluid in the heater is a flue gas produced by combusting biomass.

9. The combination defined in claim 3 wherein the fluid that supplies heat to the working fluid in the heater is a flue gas produced as a waste product of an existing industrial process.